ENVIRONMENTAL MANAGEMENT SYSTEM AND ITS IMPACTS ON MANUFACTURING COMPANY'S PERFORMANCE IN MALAYSIA

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SUPERVISOR'S DECLARATION

We hereby declare that we have checked this project and in our opinion this project is satisfactory in terms of scope and quality for the award of the degree of Bachelor of Mechanical Engineering

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I hereby declare that the work in this thesis is my own except for quotations and summaries which have been duly acknowledged. The thesis has not been accepted for any degree and is not concurrently submitted for award of other degree.

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DEDICATION

To my beloved father and mother

Mr. Yusoff bin Yaakob
Mdm. Wan Hashnah binti Wan Hassan

To my supervisor

Mr. Muhamad Mat Noor

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Bismillahirrahmanirrahim

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ABSTRACT

The ways used to limit the environmental liabilities resulting from the utilization of the resources of the environment for wealth creation is through improving the environmental performance of corporations. Therefore, ISO 14001 Environmental Management Systems provides a framework for achieving this goal and would help firms integrate environmental values into their business operations and reduce liabilities. Sceptics think that, overall, EMS will not improve the world's environmental situation because it does not set environmental performance or technology criteria and only give little benefit to the company. This study addressed this as well as other related issues of EMS by using certified manufacturing sector in Malaysia as survey sample. This research was based on EMS implemented companies located throughout Malaysia. Questionnaires were used as the main research instrument. The questionnaire form sent through 3 methods that is telephone survey, e-mail survey and mail survey. This project will study about the benefit of the EMS in economic & environmental, customer satisfaction and impact of EMS implementation to the manufacturing sector in Malaysia. About 59% of company that implemented the EMS do care about the EMS effectiveness and have initiative to develop the potential of EMS. From this study, we can see the EMS not only increase the company performance, but also give alternative in integrating the awareness of environment and indirectly give benefit to the mankind.

ABSTRAK

Salah satu cara untuk mengehadkan kesan-kesan negatif kepada persekitaran yang disebabkan oleh penggunaan sumber alam yang digunakan untuk penghasilan ciptaan/produk baru adalah dengan meningkatkan system pengurusan dan prestasi syarikat atau firma dari sudut lebih mesra terhadap persekitaran.Oleh sebab itu ISO 14001 Environmental Management System (EMS) menyediakan rangka kerja untuk mencapai matlamat dan membantu syarikatdan firma dalam meningkatkan kesedaran terhadap nilai-nilai penjagaan persekitaran dalam setiap proses yang dijalankan dan mengurangkan tanggungan terhadap persekitaran.Meskipun. Golongan yang kurang percaya (skeptis) menggambarkan bahawa EMS tidak meningkatkan atau memberi kesan terhadap situasi persekitaran dunia kerana EMS tidak memastikan standard/piawaian penggunaannya dan menetapkan kriteria untuk teknologi yang digunakan dan hanya memberi sedikit manfaat kepada syarikat.Jadi projek ini memfokuskan kajian terhadap isu-isu yang berkait rapat dengan EMS dan menganalisa maklumat berdasarkan maklum balas daripada 30 syarikat dalam sektor pembuatan di Malaysia.Kajian ini merangkumi syarikat yang telah melaksanakan EMS dalam sistem pentadbiran syarikat.Senarai soalan (questionnaire form) telah digunakan sebagai bahan kajian yang utama.Jadi,skop projek ini adalah membuat kajian mengenai faedah pelaksanaan EMS dari segi ekonomi dan persekitaran, kepuasan pelanggan, dan kesan-kesan lain yang timbul.Kira-kira 59% syarikat yang melaksanakan EMS memberi penuh komitmen dan mempunyai inisiatif untuk meningkatkan potensi pelaksanaan EMS. Daripada kajian ini, EMS bukan sahaja meningkatkan potensi syarikat malah menyediakan alternatif untuk meningkatkan kesedaran terhadap EMS dan secara tidak langsung memberi kebaikan kepada manusia.

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LIST OF ABBREVIATIONS

CATI	Computer-Assisted Telephone Interviewing
CEN	Comite Europeen de Normalisation
EMAS	Eco-Management and Audit Scheme
EMS	Environmental Management System
ESH	Environmental, safety and health
FMM	Federation of Malaysian Manufacturers
GDP	Gross Domestic Product
HR	Human Resource
ILO	International Labour Organization
ISO	International Organization of Standardization
SEQ	Safety, environmental, and quality
TC	Technical Committee
TQM	Total quality management

CHAPTER 1

INTRODUCTION

1.0 INTRODUCTION

Occupational health and safety, environmental, and quality (SEQ) issues are commonly managed by three separate departments within organizations. Because of a number of commonalities in the three management systems, there could be a degree of overlap that might lead to inefficiencies. Organizations face the need to develop integrated systems for the management of these areas. By integrating these three management systems into one SEQ system, the duplication of effort could be minimized and the health and safety, environmental, and quality issues could be managed by one common proactive approach. The present paper examines how the requirements for training in different areas overlap and how an integrated training program may be developed. [1]

Health and safety management systems have a background in theory and in various interests among employers and workplace health and safety professionals. These have resulted in a number of national systems emanating from national standard-writing centers and from employers' organizations. In some cases these systems have been recognized as national standards. The contenders for an international standard have been the International Organization of Standardization (ISO) and the International Labour Organization (ILO). The quality and environmental management systems of ISO

indicate what an ISO health and safety management standard would look like. The ILO Guidelines on Safety and Health Management Systems, by contrast, are stringent, specific and potentially effective in improving health and safety performance in the workplace. [2]

The increasing environmental consciousness of the public, the statutory requirements due to government policies and regulations, and pressures from organized groups are traditionally considered to be the factors that sway companies to adopt an Environmental Management System (EMS) policy. The needs for environmental protection (such as waste minimization, pollution prevention, energy conservation and other health and safety issues) have been widely publicized. An increasing number of firms recognize that adopting an EMS is an integral part of the business strategy. Adoption of an EMS provided an effective guidance for companies to simultaneously establish, develop and review their business practices towards both corporate and environmental goals. [3]

Total quality management (TQM) has been one of the leading management strategies for enhancing the productivity of companies in industrialized countries in recent decades. TQM allows firms to obtain, on the one hand, a high degree of differentiation, satisfying customers' needs and strengthening brand image, and on the other, to reduce costs by preventing mistakes and waste of time and by making improvements in the corporation's processes. TQM requires a cultural change and the development of a number of components in an integrated way for a successful implementation.

However, Environmental Management System (EMS) is becoming an important tool in environmental monitoring and improvement. They are used worldwide by business, organizations and agencies to identify, monitor and control potential environment impacts. An EMS is actually a business requirement now for some industry sectors, notably the automotive, manufacturing and electrical industries. Additional

sectors and trade organizations are expected to follow their lead. There are different types of environmental management systems, and standardized EMSs are designed according to the principles of the international standard ISO 14001, the EC regulation eco-management and audit scheme (EMAS) or any that are similar to them. The main purpose of this type of EMS is to organize environmental work in such a way that an organization's environmental performance improves on a continual basis and get benefit from it. To achieve this goal, the organization maps its environmental impact and identifies the significant environmental aspects into an organization. They have to make sure that the investment on the Environmental Management System is not futile and give a lot of advantage in many aspects to the company. [4]

1.1 PROBLEM STATEMENT

The Environmental Management System (EMS) implementation in manufacturing sector in Malaysia is increasing currently. The adoption of an EMS may provide tangible and intangible benefits to company's environmental as well as economic performances. However, not all manufacturing sector do understand their needs. Sceptics think that, overall, EMS will not improve the world's environmental situation because it does not set environmental performance or technology criteria. [26] Further, they believe organizations that already have an established EMS will see little benefit from aligning their system with the EMS standard. So it is necessary to study about the benefit of the EMS and impact of EMS implementation to the manufacturing sector.

1.2 OBJECTIVE

(i) To investigate the impacts of EMS implementation on the manufacturing sector's performance in economic & environmental and customer satisfaction.

(ii) To examine the benefits of adopting the EMS; ascertain whether or not the benefits of EMS certification actually far outweighed its implementation cost.

(iii) To analyze the statistic of manufacturing sector that implement EMS in Malaysia.

1.3 SCOPE OF PROJECT

(i) Passes through a questionnaire form and get feedback for data collection.

(ii) This project will doing survey at 30 different manufacturing sectors in Malaysia.

(iii) Focuses on the performance and productivity of the company.

CHAPTER 2

LITERATURE REVIEW

2.0 INTRODUCTION

Safety and health, environmental, quality and also financial management system is very important to an organizations and company. But people always see that financial is located at higher state and environmental at the lower state if a hierarchy of management system is draw. In this chapter, we will know the authority of environmental management in management system of a company. It is playing an important role in a system. If financial management is managing the finances of a company, and quality management is managing the quality of its products and processes, then it stands to reason that environmental management is managing the environment that the company operates in.

A management system can be seen as a way of improving (or establishing) these feedback loops in an organization. An EMS specially improves the feedback about a constantly evolving area: environmental protection. Continuing social awareness concerning the state of our environment is another aspect of 'sensitization' caused by better feedback loops. Obviously the more finely attuned an organization is to new developments, the better place it is to react, to plan and to improve ahead of any legal or market requirements.

2.1 ENVIRONMENTAL MANAGEMENT SYSTEM (EMS)

An Environmental Management System (EMS) is a set of processes and practices that enable an organization to reduce its environmental impacts and increase its operating efficiency. An EMS is a voluntary management system for identifying, controlling and monitoring a facility's activities, which have potential environmental impacts. The framework provides structure and consistency for overseeing daily activities that shifts the environmental focus from reactive to proactive. Voluntary implementation of EMSs has increased throughout the world as industry and organizations realize their environmental and market place value.

EMS integrates the environmental issue with all organizational activities, by establishing principles which attempt to search for continuous improvement in the relationship between the company and its natural environment. In other words, an environmental management system is a set of intensive managerial processes, which require a company to identify measure and control its environmental impacts.[5] Environmental Management Systems refers to organization's structures for managing its processes or activities that transform inputs of resources into products or services which meet the organizations objectives, such as satisfying the customers' quality requirements, complying with regulations or meeting environmental objectives (ISO publications, 2005). An EMS has been defined by the British Standards Institute(1992) as 'The organizational structure, responsibilities, practices, procedures, and resources for determining and implementing environmental policy'.[6] It is a voluntary tool which can help corporations to control environmental impact arising from their operations. It helps to improve company's operation process, reduces liabilities resulting from poor compliance to environmental regulations and brings economic fortunes. It seeks to integrate environmental considerations into every aspect of a company's operations and make caring for the environment the responsibility of each employee.

Environmental management does not seek to manage the environment directly. Instead, it concentrates on the more indirect, but nonetheless effective, route of managing an organization's activities that give rise to impacts upon the environment. The focus of the work becomes the interaction between the organization and the environment, and the rather fluid interface between the two. It is the environmental aspect (as opposed to the financial or quality aspect) of an organization's activities, products and services that are the focus of management. [7]

2.1.1 Basic Elements of EMS

(i) Reviewing the organization's environmental goals;
(ii) Analyzing its environmental impacts and legal requirements;
(iii) Setting environmental objectives and targets to reduce environmental impacts and comply with legal requirements;
(iv) Establishing programs to meet these objectives and targets;
(v) Monitoring and measuring progress in achieving the objectives;
(vi) Ensuring employees' environmental awareness and competence; and
(vii) Reviewing progress of the EMS and making improvements.

2.1.2 Benefit of EMS

(i) Cost savings;
(ii) Reduced risk;
(iii) Increased operational efficiency;
(iv) Positive external relations and public image;
(v) Improved communication;
(vi) Greater employee stewardship;
(vii) Shared environmental solutions; and
(viii) Improved public relations.

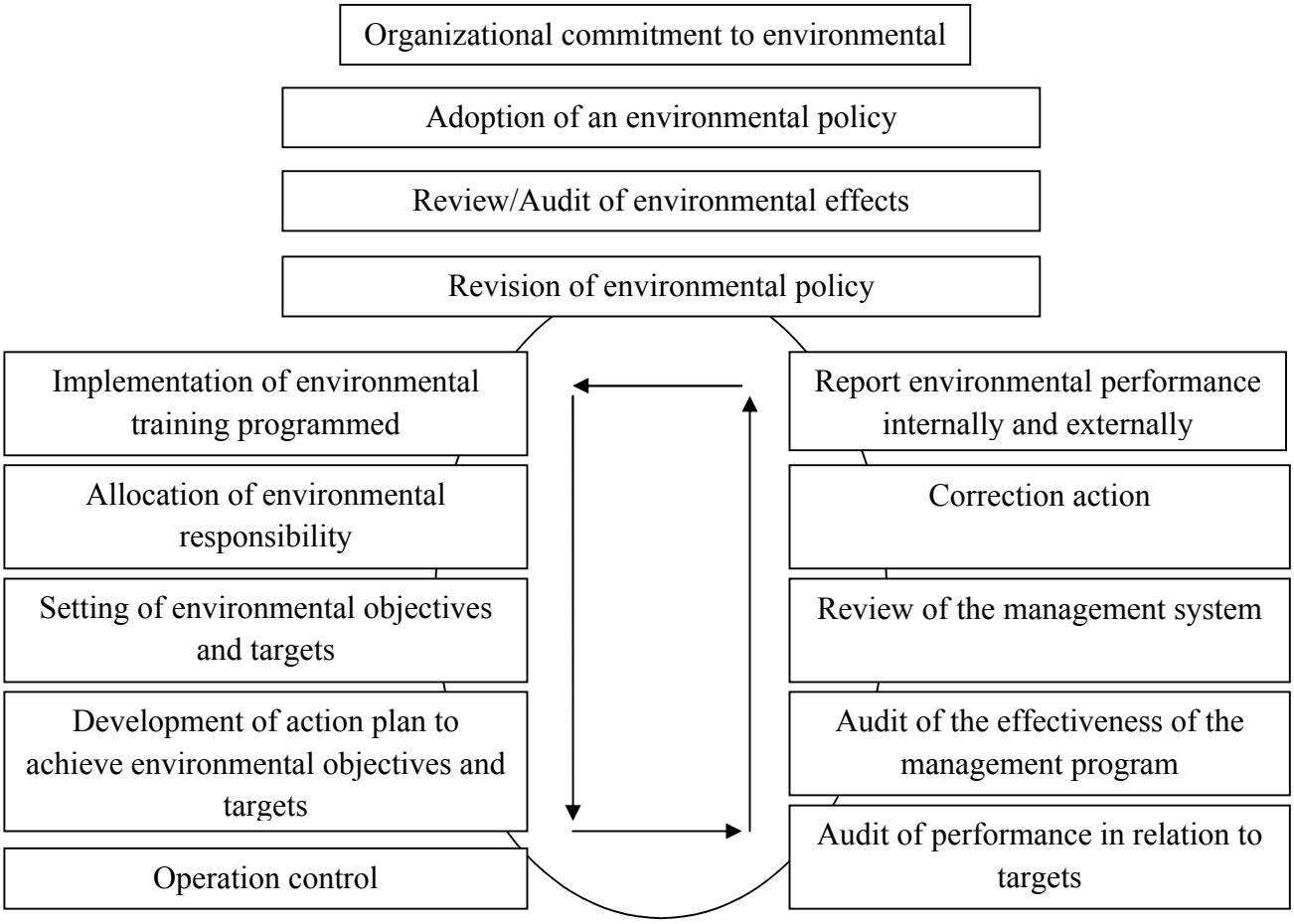

Figure 2.1: Type of system of effective EMS into an organization

2.2 REASONS TO IMPLEMENT EMS

There is much reason that encourages a company to implement the EMS. For the companies that are very concern with environment, EMS is very important in their operating system. The main factor that encourage the company to implement EMS are: [10]

(i) Organizational reasons;

(ii) Structure in the environmental management;

(iii) Enhancing following-up procedures;

(iv) Co-ordination and integration of environmental effort within the local authority;
(v) Obtaining better/more efficient organization;
(vi) Quality improvement;
(vii) Increased awareness for environmental issues;
(viii) Increased enthusiasm/engagement for environmental issues within the organization;
(ix) Security (preparedness for accidents);
(x) Direct environmental reasons;
(xi) Decrease the negative environmental impact;
(xii) Mapping the environmental impact;
(xiii) Save natural resources;
(xiv) Set a good example and marketing reasons;
(xv) Set a good example;
(xvi) Establishing an environmental profile;
(xvii) Demand from the public;
(xviii) Adaptation to the society;
(xix) Trust worthiness;
(xx) Marketing;
(xxi) Political reasons;
(xxii) Financial savings.

2.3 ISO 14001

Many will already heard of ISO 9000 and even more will have experience working within a management system design according to its principles. What will be more interest is it also called ISO 14001.The international standard for EMSs was first published by the International Organization for Standardization (ISO) in 1996 and was last revised in 2004.Its official catalogue title is ISO 14001: Environmental Management System-Requirement with guidance for use. As part of a wider agreement, the standard

has also been adopted as a European standard by the European standard making body, Comite Europeen de Normalisation(CEN).Within Europe, it is officially known as EN ISO 14001,to indicate its dual recognition. It is part of a series of standards produced by the ISO Technical Committee (TC) 207:`Environmental Management'.

ISO 14001 Environmental Management Systems is a blue print for the organizations management systems and is the only specification standard in the ISO 14000 series. It describes how an organization might manage and control its organizational systems so that it measures, controls and continually improves the environmental aspects of its operations (Krut and Gleckman, 1998). In fact, the major goal of the ISO 14000 and 14001 series is to support environmental protection and the prevention of pollution in harmony with socio-economic needs. It helps to improve and demonstrate organizations environmental performance through the presence of Certified Environmental Managers. It requires commitment to continual improvement and compliance with relevant legislations and regulations, but does not present environmental performance requirements.

ISO 14001 Environmental Management Systems is built on the framework of "plan, Do, Check and Act". In other words, it involves; environmental policy and planning; Implementation and operations, checking (evaluating) and corrective action and management review. Implementation and compliance to ISO 14001 Environmental Management Systems bestows certain benefits to organizations, such as reduces their waste and energy consumption; improved process, marketing with green labels, recoverable resources, as well as regulatory shift from command and control to cooperation. Generally, it will improve the quality of the environment and save cost/thereby increasing profitability.

Table 2.1: ISO 14000 series

STANDARD NUMBER	TITLE	RELEVANCE
ISO 14001	EMS: Requirement for use with guidance	Requirement is expressed in Clause 4.Useful additional guidance in annexes which are advisory only.
ISO 14004	EMS: General Guidelines on Principles, System and Supporting Technique	Useful background information on the approach to EMS installation
ISO 14015	Environmental Assessment of Sites and Organizations(EASO)	Guidance useful for self-assessment or pre-acquisition auditing
ISO 14020-14025	Environmental Labels and Declarations	Not directly relevant EMS implementation. Useful only to those interested in taking part in an eco-labeling scheme, or in making declarations concerning products and services with environmental aspects
ISO 14031	Environmental Performance Evaluation-Guidelines for Environmental Management	Very useful in establishing measurement for objectives and targets and environmental performance indicators as part of an EMS, or as a precursor to the installation of an EMS
ISO 14040-14048	Life Cycle Assessment	Could be useful in getting to grips with LCA as part of your IER
ISO 14050	Environmental Management: Vocabulary	Advisory, but very useful to ensure that everyone is using a common terminology. Especially useful to those managing multisite operations
ISO 14063	Environmental Communications	Guidance on the full range of environmental aspects of both internal and external communications